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On Hungarian Branchiobdellids (Oligochaeta: Branchiobdellidae)

By

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ABSTRACT. A short description of three branchiobdellid species from Hungary is given. One of them, Branchiobdella pentodonta Whitman, is new for the fauna of Hungary. A key for all Hungarian branchiobdellids is also provided.

Branchiobdellids are epibionts on crayfishes and, as an exception, on other freshwater crustaceans (HOLT, 1965). Because of this unusual manner of life they often escape the attention of specialists on Oligochaeta.

At first branchiobdellids were considered to belong to the order Hirudinea, but later the group was placed among the Oligochaeta (STEPHENSON, 1930). HOLT (1965), however, proposed to separate the branchiobdellids into the order Branchiobdellida, which together with the orders Oligochaeta, Hirudinea and Acanthobdellida are grouped in the class Clitellata, so the systematic status of the group is still debatable.

All European branchiobdellids (and a some of the Asian ones) belong to subfamily Branchiobdellinae. This subfamily differs from the Cambarinconcolinae (all American species and some of the Asian ones) in having only a single pair of testes in the V body segment (HOLT, 1973). After the revision of POP (1965) and the works of KARAMAN (1970), KOZAROV, MICHAILOVA et SUBCHEV (1972) and SUBCHEV (1978), 7 species are confirmed to occur in Europe; Branchiobdella astaci Odier, 1823; B. parasita Henle, 1835; B. pentodonta Whitman, 1882; B. hexodonta Gruber, 1883; B. italica Canegallo, 1928; B. balcanica Moszynski, 1937 and B. kozarovi Subchev, 1978. In addition to this a new subspecies has been described from Jugoslavia by KARAMAN (1970) - B. balcanica sketi Karaman, 1970.

FERENCZ (1979) noted only two species of the family Branchiobdellidae for the fauna of Hungary in her "Guide for the identification of aquatic Oligochaeta of Hungary". In the present work a short description of three other species from Hungary is given: for two of them on the basis of literature data, and for one - on the basis of material examined by the author. A key to all 5 Hungarian species of branchiobdellids is also given.

Branchiobdella hexodonta. The body of the live worms is almost cylindrical; when fixed the body is slightly widened in 5th to 7th trunk segments. Only in this European species a groove divides the head into two parts. Upper and lower jaws are similar with long lateral teeth and three or four shorter and median teeth equal in size. B. hexodonta is a gill-inhabiting species. It is known for Hungary from material collected in Újbánya, the host is not mentioned (POP, 1965).

Branchiobdella balcanica balcanica. The body of the live worms is spindle-formed; when fixed it is dorso-ventrally flattened. The most characteristic feature that separates this species from the other representatives of the so-called "pentodonta group" (KARAMAN, 1970) is that the 4th trunk segment is distinctly wider than the 3rd one. Upper and lower jaws are similar, with 5 or 6 teeth (rarely 4 or 7) - lateral teeth and median tooth longer than the other ones. The usual localization on the crayfish is the anterior part of the body including

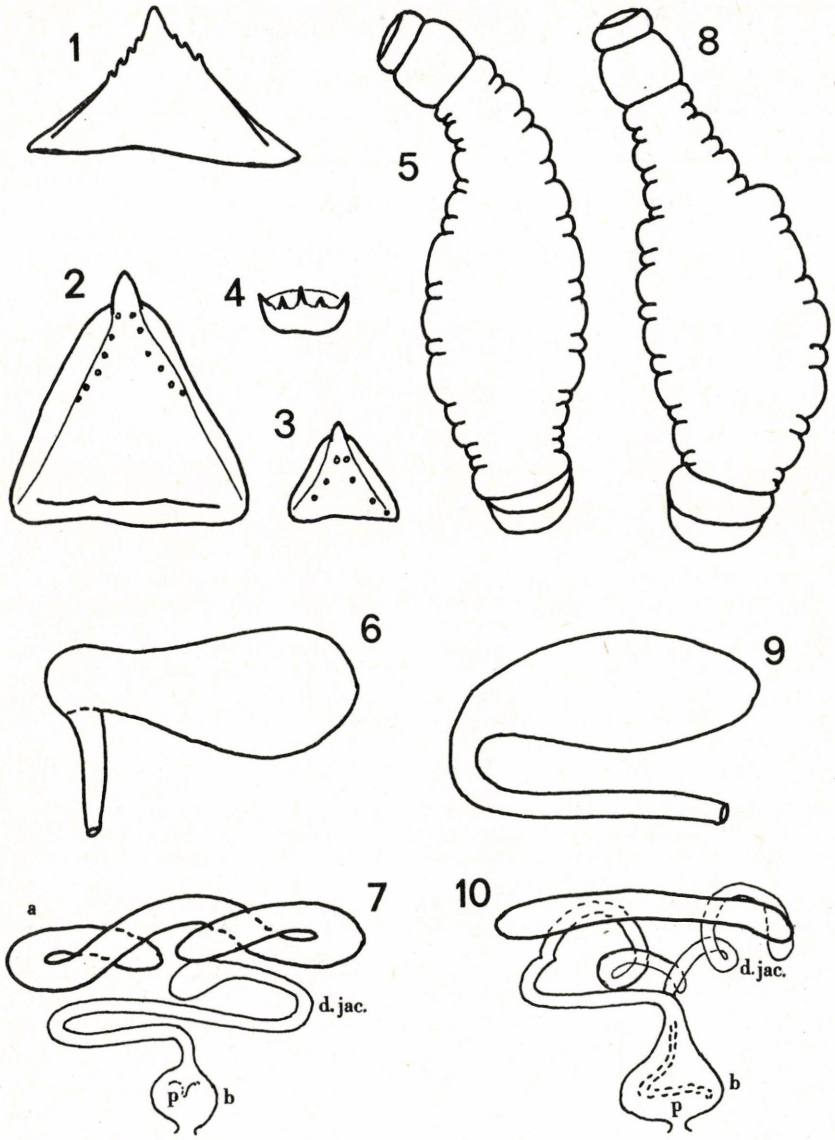

Fig. 1: Branchiobdella parasita, jaw
Figs. 2-3: B. astaci (2= upper jaw. 3= lower jaw)
Figs. 4-7: B. pentodonta (4= jaw; 5= general view of body; 6= spermatheca; 7= male reproductive system)
Figs. 8-10: B. balcanica (8= general view of body; 9= spermatheca; 10= male reproductive system)
(Abbreviations: a= atrium (glandular part), b= bursa, d. jac.= ductus ejaculatorius (nonglandular part of atrium), p= penis)

chelae. This subspecies, described as B. pentodonta orientalis POP, 1965, is known for Hungary from material collected in Újbánya, the host is not mentioned (POP, 1965). Later this subspecies was synonymized to B. balcanica balcanica by KARAMAN (1970).

Branchiobdella pentodonta. 27 specimens of this species were collected on Astacus astacus L. from the Bükk National Park, Csernely-patak (a small brook), Hungary; they include 11 mature and 16 unmature worms. The branchiobdellids were fixed in 80% alcohol and than examined by means of a stereoscope; two of the mature worms were dissected and the reproductive system and the jaws were removed for more detailed investigations. The material was identified as B. pentodonta by the form of the body and the form of the jaws and the reproductive system. No differences from the original description of the species and from Bulgarian material were found. The body of the fixed mature worms is dorso-ventrally flattened, but the extension from the 3rd to the 6th trunk segment is gradual, unlike in the previous species; the jaws are similar to the jaws of B. balcanica balcanica. In addition to this there is a certain distinction between the reproductive systems of B. pentodonta and B. balcanica respectively. In B. pentodonta the glandular part of the atrium is distinctly longer than the nonglandular one (ductus ejaculatorius) while the situation is vice versa in B. balcanica balcanica; in B. pentodonta the duct of the spermatheca is shorter than its length and well defined, and in B. balcanica balcanica the duct is relatively longer and no distinct dividing line between the theca and the ductus is visible as is the case in B. pentodonta.

For all Hungarian species except B. pentodonta and B. balcanica the form of the jaws is a reliable feature for identification. In addition to this the fixed material of the species could be divided in two groups (which is useful for preliminary identification): big branchiobdellids (mature worms usually longer than 5 mm) - B. astaci and B. parasita and medium-sized branchiobdellids (mature worms usually shorter than 5 mm) - B. hexodonta, B. pentodonta and B. balcanica.

KEY TO THE HUNGARIAN SPECIES OF THE GENUS BRANCHIOBDELLA

1. Jaws triangular 2
   Jaws not triangular, with 5 or 6 teeth 3
2. Jaws equal in size ..... B. parasita
   Dorsal jaw more than twice larger than ventral one ..... B. astaci
3. Jaws with long lateral and equal in size 3 or 4 medial teeth ..... B. hexodonta
   Jaws with lateral and medial teeth larger than others 4
4. Body widening gradually from 3rd to 6th trunk segment, glandular part of the atrium distinctly longer than nonglandular ..... B. pentodonta
   4th trunk segment in mature worms distinctly wider than 3rd; glandular part of atrium distinctly shorter than nonglandular ..... B. balcanica

The sixth European branchiobdellid species - B. italica is not expected to be found in Hungary since its only host Austropotamobius italicus, does not inhabit this country. So far the remaining species, B. kozarovi, is known only from Bulgaria and the Ukraine (BOSHKO, 1983).

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